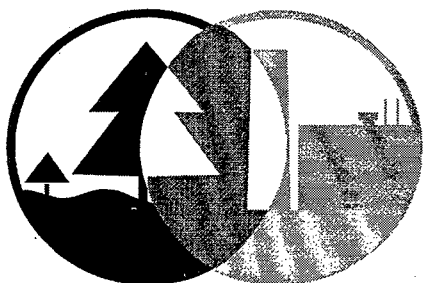




# IINERT Soil-Metals Action Team



## RTDF

**Remediation Technologies  
Development Forum**

**RTDF Action  
Teams**

**IINERT Soil-Metals Action  
Team**

**Lasagna™ Partnership**

**Bioremediation Consortium**

**Permeable Barriers Action  
Team**

**Sediments Remediation  
Action Team**

## *What is the IINERT Soil-Metals Action Team?*

The In-Place Inactivation and Natural Ecological Restoration Technologies (IINERT) Action Team was established in November 1995, as one of five Action Teams under the Remediation Technologies Development Forum (RTDF). The RTDF was created by EPA in 1992 to foster collaboration between the public and private sectors in developing innovative solutions to mutual hazardous waste problems. The IINERT Soil-Metals Action Team includes representatives from industry and government who share an interest in further developing and validating *in-situ* techniques as viable technologies for eliminating the hazards of metals in soils and surficial materials.

## *What are IINERT Technologies?*

IINERT technologies chemically and physically inactivate soil-metals found at the earth's surface by reducing and essentially eliminating their solubility and bioavailability without the need for excavating the soil. *In-situ* incorporation of chemicals—such as phosphates, mineral fertilizers, iron oxyhydroxides, other minerals, biosolids, limestone—changes the molecular species of the metals. Changing a metal's molecular species can reduce its water solubility, bioavailability, and potential toxicity to humans and the environment. However, the total concentration of the metals may not necessarily change.

The chemicals used for inactivation may also increase the fertility of the soil and eliminate any toxicities to plants and soil organisms. Growing a plant cover physically stabilizes the soil and its contaminants in place, which minimizes soil erosion and offsite movement of soil and the metals it contains. Incorporating amendments and growing plants are more natural ways of restoring the ecology of a soil when compared to other techniques, such as soil excavation, landfilling, soil washing, or soil capping.

Of the treatment options available for mitigating metals-contaminated soils, in-place inactivation appears to be the most cost effective. Additionally, it treats the contaminant in a way that reduces the hazard posed by the soil rather than burying it in a landfill or covering it over. In this way, contamination of other areas does not occur since soil cover and landfill space are not needed.

## *What is the Action Team's Mission?*

The mission is to develop and demonstrate in-place inactivation and natural ecological restoration technologies that reduce and eliminate the risks of metals/metalloids in soil to human health and the environment and to achieve regulatory and public acceptance of these technologies.

## What Are the Action Team's Goals?

The goals of the Action Team are to:

- Understand the mechanisms by which IINERT technologies work.
- Develop appropriate testing protocols and methodologies that illustrate their utility.
- Improve predictive capabilities.
- Facilitate validation of the effectiveness and persistence of these technologies.
- Prepare guidelines for effective implementation of these technologies.
- Gain scientific, public, and regulatory acceptance.

## What Activities Are Planned?

The Action Team plans to investigate the following issues:

- What are the physical, chemical, and biological mechanisms of hazard reduction?
- What speciation techniques are appropriate?
- What factors limit these technologies?
- What are the technical omissions?
- What factors limit public acceptance?
- What animal surrogate can be used to determine human bioavailability from soil ingestion?
- What chemical extractions/*in-vitro* tests, which may be used to demonstrate hazard reduction, can lessen the need for animal feeding studies?

Areas to be addressed include: (1) soil characterization; (2) site characterization; (3) treatment characterization and optimization; (4) hazard characterization; and (5) hazard testing protocols.

## Who Are the Action Team Members?



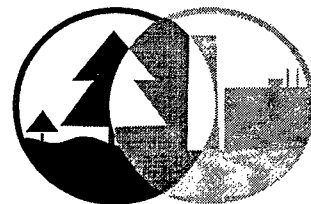
U.S. Army Corps of  
Engineers  
U.S. Department of Agriculture

U.S. Department of Energy  
U.S. Environmental Protection Agency



ASARCO  
Beazer East, Inc.  
Doe Run Company

DuPont  
ETHYL Corporation  
FMC Corporation  
ILZRO  
PPG Industries, Inc.  
PTI Environmental Services  
3M Company



# RTDF

Remediation Technologies  
Development Forum

## Would You Like More Information?

For more information on the IINERT Soil-Metals Action Team, please contact:

Bill Berti, Ph.D.  
DuPont Central Research and Development  
Glasgow Business Community Site 301  
P.O. Box 6101, Route 896  
Newark, DE 19714-6101  
Tel: (302) 451-9224  
Email: [bertiwr@esvax.umd.dupont.com](mailto:bertiwr@esvax.umd.dupont.com)

Jim Ryan, Ph.D.  
U.S. Environmental Protection Agency  
National Risk Management  
Research Laboratory  
26 West Martin Luther King Drive  
Cincinnati, OH 45268  
Tel: (513) 569-7653  
Email: [ryan.jim@epamail.epa.gov](mailto:ryan.jim@epamail.epa.gov)

For information on the RTDF or the other Action Teams, please contact:

Robert Olexsey  
U.S. Environmental Protection Agency  
Tel: (513) 569-7861  
Email: [olexsey.bob@epamail.epa.gov](mailto:olexsey.bob@epamail.epa.gov)

Walter Kovalick, Jr., Ph.D.  
U.S. Environmental Protection Agency  
Tel: (703) 603-9910  
Email: [kovalick.walter@epamail.epa.gov](mailto:kovalick.walter@epamail.epa.gov)



To request other RTDF factsheets, please  
write/fax to:

EPA/NCEPI  
11305 Reed Hartman Highway, Suite 219  
Cincinnati, OH 45241  
Fax: (513) 489-8695

Copied on Recycled Paper

